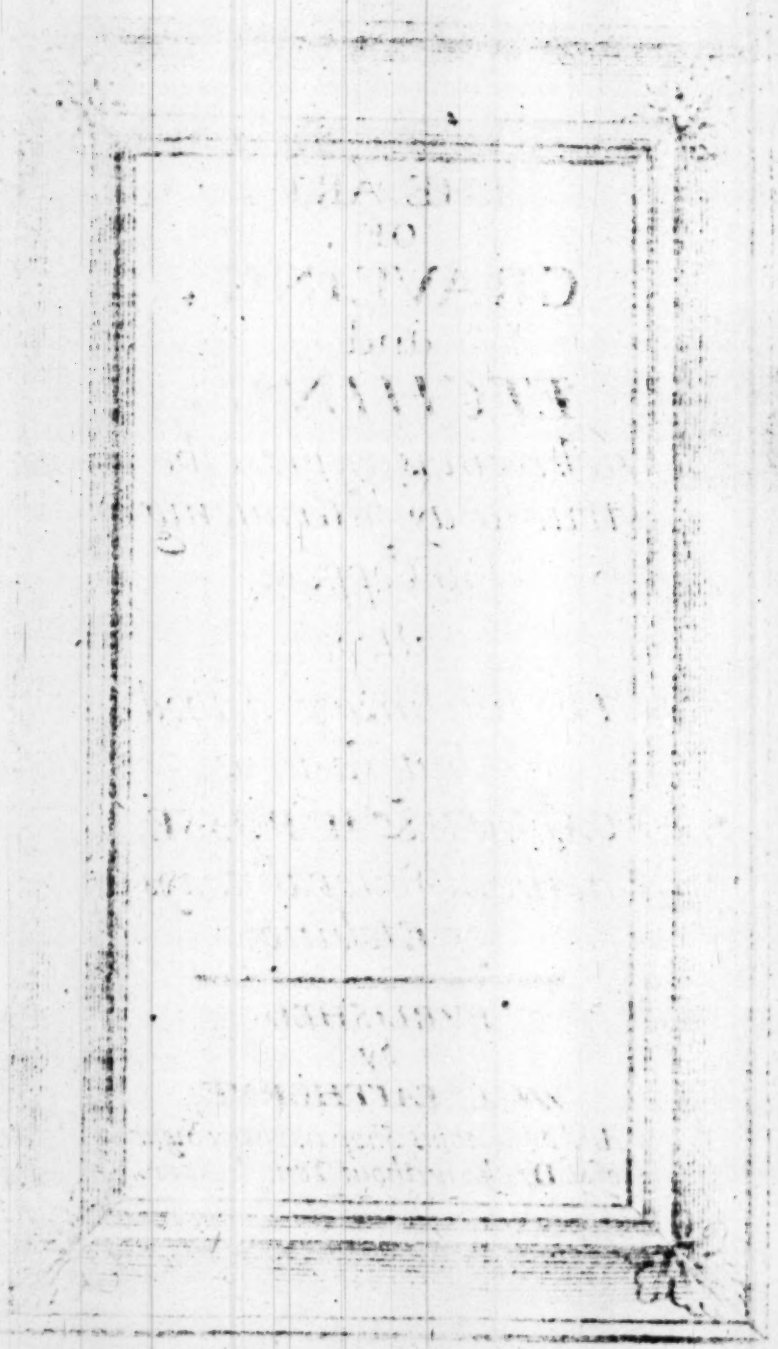
# THE ART OF GRAVEING and ETCHING

*wherein is exprest the true way of Graueing in Copper.*

*allso*

*The manner & method of that famous* CALLOT, *&* M^r. BOSSE. *in their Seuerall ways of Etching.*

PVBLISHED by WILL^m. FAITHORNE. And Sold at his Shop next to y^e. Signe of y^e. Drake without Temple Barr. 1662



W 7392 AE

# To the Right Worſhipfull Sir *Robert Peake* Knight.

*SIR,*

THE Honour of having ſerv'd his late Majeſty (under your Conduct) in the Garriſon of Baſing, hath given me ſome reputation in the World. and the happineſſe of having ſerv'd your ſelf, before the Warrs, hath given me a Condition of living in it. in both, under the Regiment of your Command. you chang'd the ſteel of my Tools into Weapons, and the exerciſe of my Arts into Arms; when the ſervice of the King challenged the duty of his Subjects, you then prompted me unto Loyalty: that ſervice unhappily ending, you re-adviſed

*a returne to my imployment: the whole courſe of my life, having thus in ſome meaſure been an Obſervancy of your Directions, to whom ſhould I dedicate the Iſſues of my Labours in it, but to you: and having now to preſent my Countrey with ſomething of uſe, profit, and delight, take occaſion by theſe to ſpeake my gratitude, and preſerve to my ſelf the honour of continuing what I have been,*

*Sir,*
*Your humble and*
*devoted ſervant,*

William Faithorne.

*To*

# *To the Lovers of this Art.*

I Have had the thoughts oft-times to publiſh this enſuing Treatiſe of Graving and Etching, becauſe it hath arrived to ſuch an height in theſe our latter times, as it becomes a fit ſubject for our Kingdomes knowledge and practice. We need no other witneſſes to confirm this truth, than the Works of thoſe famous Maſters, the *Sadlers*, *Goltzius*, *Bleumart*, *Mellan*, *Natalis*, *Pontius*, *Poilly*, &c. And as for Etching, we are obliged to that Renowned *Callot*, and his Diſciple *Boſſe*; who hath not only practiſed, but alſo hath been ſo courteous as to diſcover in the *French* Tongue, this Art unto his Country men. I have uſed him as an Author in this Work, yet I have not traced him ſo cloſely as to make it a meer Tranſlation; but added ſomething, making uſe of what I thought neceſſary: So as (I hope) I am neither ſo tedious as to be troubleſome, nor ſo ſhort as to be obſcure.

I ſhall not trouble my ſelf to ſpeak in the Commendation of this Art, but (to thoſe that may ſeem to detract from it) give me leave

only to say thus much; that, the result of Ayre, the Symetrie of parts, the exact harmony of Proportions, of lights and Shadows, may be performed to the height in Graving. Therfore I recommend it to publick view, hoping of it's fair Reception by all Lovers of Arts; which is the utmost aim and expectation of

*W. F.*

---

To

---

## To my ingenious Friend Mr. *Faithorne* on his Book.

*SHould I attempt an Elogy, or frame*
*A Paper ſtructure to ſecure thy Name;*
*The lightning of one cenſure, one ſtern frown*
*Might quickly hazard that, and thy renown.*
*But this thy Book prevents my ſlender pain,*
*One Line ſpeaks purelier Thee, than my beſt ſtrain.*
*Thoſe Myſteries (once like the ſpightfull mold*
*That bars the greedie* Spaniard *from his Gold)*
*Thine ingenuitie reveals, and ſo*
*By making plain, thou doſt Illuſtrious grow.*
*That hand, whoſe curious Art protracts the date*
*Of frail Mortalitie, and baffles Fate*
*With Braſs and Steel, can ſurelie potent be*
*To rear a ſtatelie Monument for Thee.*
*For my part, I prefer (to guard the Dead)*
*A Copper Plate, before a ſheet of Lead.*
*So long as Braſſe, ſo long as Books endure,*
*So long as neat-wrought Pieces, Thour't ſecure,*
*A* Faithorne ſculpſit *is a Charm can ſave*
*From dull Oblivion, and a gaping Grave.*

T. Flatman.

# An Index directing to the ſeveral Sections contained in this Book.


*How to make the hard Varniſh, for graving with* Aqua fortis. *Page* 1.

*How to make the Compoſition or mixture of Greaſe and Oyl, to cover thoſe places in your Plate where you would not have the* Aqua fortis *to eat in.* *p.* 2.

*How to prepare the Ingredients for making the* Aqua fortis *for the hard Varniſh.* *p.* 3.

*How to make this* Aqua fortis. *p.* 3.

*How to know good Copper from bad.* *p.* 4.

*How to planiſh and poliſh your Plate.* *p.* 4.

*How to apply your hard Varniſh on the plate, and make it black.* *p.* 7.

*How to dry or harden the Varniſh upon the Plate.* *p.* 9.

*How to chuſe your Needles, wherewith to make your Tooles to Etch with.* *p.* 10.

*How to whet the points of your Needles.* *p.* 10.

*To preſerve the Varniſh upon the Plate.* *p.* 11.

*How to Etch.* *p.* 11.

*How to guide your Needles upon the Plate.* *p.* 12.

*How to uſe the Oval points to make large ſtrokes in Etching or Graving with* Aqua fortis. *p.* 14.


*How*

*How to prepare your Plate to receive the* Aqua fortis. *p.* 16.
*How to make the Trough and Frame, to hold the Plate when you will pour the* Aqua fortis *on it.* *p.* 18.
*The manner of caſting the* Aqua fortis *upon the Plate; as alſo how to cover the Places, that are fainteſt, and moſt remote from the eye, with the forementioned mixture, as occaſion ſhall require.* *p.* 19.
*How to take the ground, or the Varniſh off the Plate, after the* Aqua fortis *hath done its operation.* *p.* 25.

## Of ſoft Varniſh.

*How to make it, & the uſes it is to be put to.* *p.* 27
*The manner of laying your ſoft Ground or Varniſh upon the Plate.* *p.* 28.
*How to border your Plate, that it may contain the* Aqua fortis. *p.* 32.
*The manner how to lay a white ground upon the hard or ſoft Varniſh.* *p.* 35.
*Another way how to lay a white upon the Varniſh.* *p.* 38.
*Here followeth the manner after that your Plates are eaten into by the* Aqua fortis; *how to touch up, or regrave that which happily you may have for-*

*forgotten, or that which you would amend or ſupply.* p. 39.

## Of Graving.

*The ſeveral wayes of drawing the deſign upon the plate.* p. 41.
*The forms of graving Tooles, as alſo the manner of whetting your Graver.* p. 43.
*The manner how to hold your Graver, with other particulars.* p. 45.
*The manner of governing your hand in Graving, and other particulars.* p. 47.

---

*FINIS.*

# The Art of Graving.

with *Aqua fortis*.

## Sect. 1. *How to make the hard Varniſh for engraving with* Aqua fortis.

TAke five ounces of Greek pitch, or (for want of that) Burgundy pitch, five ounces of Rozin of Tyre, or *Colofonium*, or for want of that) ordinary Roſine: Melt them together upon a gentle fire in a new earthen pot, well varniſhed, or leaded, and being very clean: Theſe two things being firſt melted, and well mixt together, put into them four ounces of the beſt Nut Oyl; mix them well together upon the ſame fire the ſpace of a full half hour, and let them boyl well; Then let this mixture cool a little upon a ſofter fire; and afterwards, touching it with the end of your finger, it will rope (if it be boyled enough) like a glewy Syrup. Then take the pot from the fire, and (the varniſh being a little more cooled) ſtrein it through a fine Linnen cloth, or Taffata, into a well varniſhed earthen pot; or elſe put it into any thick glaſſe bottle, or any other thing that will not drink it up, and ſtop it well. Varniſh thus made will laſt twenty years, and it will be the better the longer it is kept.

It is reported of *Monſieur Callot*, that he had his varniſh ſent him ready made from *Italy*, which was made there by the Joyners, who uſed it to var-

niſh their work: They called it *Vernice groſſo de Lignaioly*: He gave ſome to the Author, which he uſed a long time; but ſince made uſe of the varniſh whereof you have a deſcription before.

Sect. 2. *How to make the compoſition or mixture of greaſe and oyl, to cover thoſe places in your plate, where you would not have the* Aqua fortis *to eat in.*

TAke an earthen porrenger well leaded; put into it a quantity of Sallad oyl, and ſet it on the fire, and when the oyl is hot, put into it a quantity of Candles-greaſe; when that is melted, take a pencil and dip it in, and let a drop or two fall on a plate, or any cold hard thing; and if the drops be a little hardened and firm, it ſheweth that the mixture is well made. For you may judge, that if it is too liquid, it is becauſe there is too much oyl; and if ſo, then you muſt put in more greaſe; and by the ſame reaſon, if it be too hard, you muſt put in more oyl: having made it in this manner, boyl it well the ſpace of an hour, that the oyl and the greaſe may be well mixed together, and that you may perceive them of a reddiſh colour, otherwiſe they will be apt to ſeparate, when you ſhould uſe them.

The reaſon why you melt the oyl, and the greaſe together, is to make the greaſe more liquid, and not cool too faſt: for ſhould you melt the greaſe alone, you ſhall no ſooner take it up with the point of your pencil to carry it to the place where you would uſe it, but it will grow cold.

Put in a greater quantity of oyl in Winter, then in Summer.

Sect. 3.

Sect. 3. *How to prepare the Ingredients for making the* Aqua fortis *for the hard varniſh.*

THe *Aqua fortis* is made of Vinegar, Salt Armoniack, Bay-ſalt, and Vert de griz.

The Vinegar muſt be of the beſt ſort of white-wine Vinegar; but if it be diſtilled, it is the better, and not ſo ſubject to break up the varniſh.

The Salt Armoniack muſt be clear, tranſparent, white, pure, and clean.

The Bay-ſalt muſt be alſo pure and clean.

The Vert de griz muſt be clean, and free from any ſcrapings of braſſe.

The Salt Armoniack and Vert de griz are commonly ſold at the Druggiſts.

Sect. 4. *How to make this* Aqua fortis.

TAke three pints of Vinegar, ſix ounces of Salt Armoniack, ſix ounces of Bay ſalt, and four ounces of Vert de griz; or of each according to this proportion, as you will make your quantity more or leſſe: put them all together in an earthen pot well varniſhed, large enough, that it may not boyl over: Cover the pot, and put it on a quick fire, and let it ſpeedily boyl two or three great walmes and no more: When you perceive it ready to boyl, and not before, uncover the pot, and ſtirre it with a little ſtick ſometimes, and take heed that it do not boil over: Having thus boyled it two or three great walmes, take off the pot from the fire, and let it cool; but keep the pot covered, and

when it is cold poure it into a glaſſe bottle, and let it ſtand ſtopped a day or two before you uſe it: and if you ſhall find it too ſtrong in the etching, poure into it a glaſſe or two of the ſame Vinegar you made it of.

## Sect. 5. *How to know good Copper from bad.*

COpper is beſt for graving with a Graver, or *Aqua fortis*; Braſſe is too brittle. That Copper is beſt which is free from flaws, and not too hard, which you may perceive by its yellowiſh colour, almoſt like braſſe: & if it be too ſoft, you may ſomewhat perceiv it by its too much pliableneſs in bending. When you are to make uſe of it, you ſhall perceive (in that which is good) a firm, yet eaſie force in the entring of your graver: and that Copper which is beſt for graving, is alſo beſt for etching.

## Sect. 6. *How to planiſh and poliſh your Plate.*

HEre in *England* you muſt buy your Copper ready forged from the Braſiers.

It is not neceſſary, that they which deſire to engrave ſhould forge and poliſh their Copper themſelves; but becauſe in divers places there is not conveniency of having it ready poliſhed, I have thought fit to ſet down the manner how it may be done.

Thoſe Plates which you intend to forge and planiſh,

niſh, muſt be fully as thick as an half-crown, becauſe in their forgeing and planiſhing they will become ſomewhat thinner. You muſt planiſh your Copper cold, as the Silver-Smiths do their Plate: And the more it is beaten or planiſhed with an hammer, the firmer it is, and leſſe ſubject to holes or flaws.

Your Plate being well planiſhed, make choice of the ſmootheſt ſide for poliſhing: Before you begin to poliſh it, fix it upon a board; and when you poliſh it, let your board (to which the plate is fixed) ſtand a little declining or ſloping.

To poliſh your Plate, take a piece of a Grinding-ſtone about the bigneſſe of your fiſt, and fair water, and rub it firmly, and evenly all over; and in your rubbing throw water often on it, and continue ſo doing, till you cannot perceive any dints, or flaws, or marks of the hammer: Then waſh it clean with water: Afterward take a good Pumice-ſtone, and rub the ſame Plate with it and water, till there appear none of the rough ſtroaks, or marks of the ſtone: Then waſh it clean with water, as you did before.

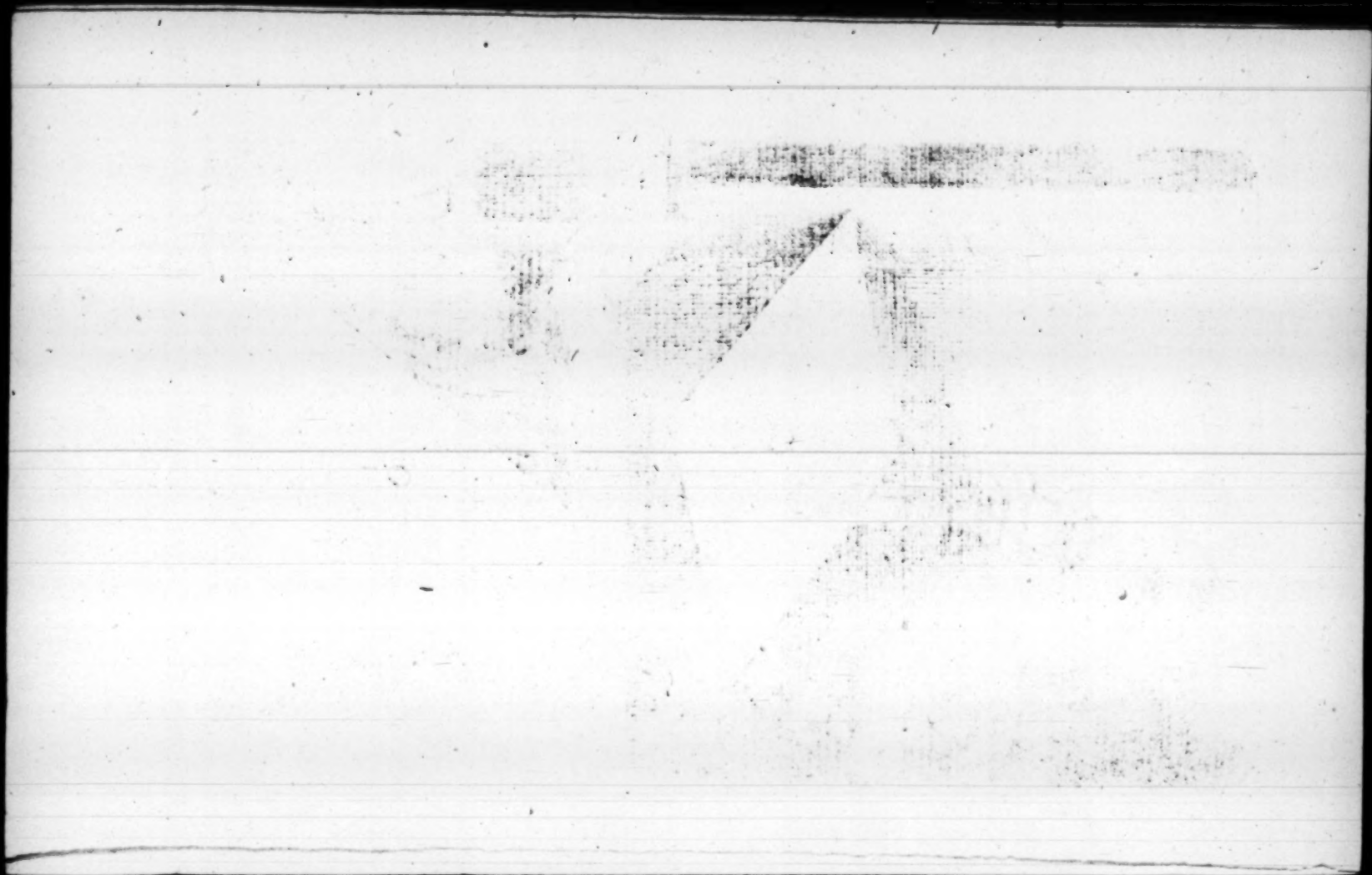
Again, do the ſame thing with a fine ſmooth Hoan and water, till all the marks of the Pumice-ſtone are quite rubbed out: This done, waſh it clean with fair water.

Then chooſe out a Chark-cole ſmooth, without any knots, or rough grain, and put it in a well-kindled fire: let it be there, till you may perceive it red hot; Then take it out of the fire, and immediately quench it in cold water; Then take it out, and pair off the uttermoſt rind, and

rub your Plate with it, and water, till all the ſmall ſtrokes of the Hone be rubbed out : If the cole be naught, it will only ſlide upon the Plate, and not rub out the ſtrokes.

After you have thus poliſhed it with a Chark-cole, if you perceive any ſmall ſtroaks, or ſcratches on your Plate, then take a well-hardened piece of ſteel, made ſomewhat roundiſh at the end, which is commonly called a burniſher; and with it rub thoſe places firmly and evenly, where you perceive any ſtrokes, or ſcratches. When you have done this, waſh it clean, and dry it by the fire : and if by any accident your Plate be foul or greaſie, take the crummes of ſtale bread, or fine-powdered Chalk, and rub your Plate over with it : The Plate being thus poliſhed and cleanſed, is fitly prepared to lay on your Varniſh.

Sect.



Sect. 7. *How to apply your hard Varniſh on the Plate, and make it black.*

TAke your Plate thus cleanſed, and lay it on a chafing-diſh with a little fire in it, and when it is indifferently hot, take it away, and take up ſome of the Varniſh with a little ſtick, and put a drop of it on the top of one of your fingers; then lightly touch the plate with the top of your finger in ſeverall places at equall diſtances; as the uppermoſt figure in the plate ſheweth you, the ſame being marked with the letter O: and lay no more on one place then on another. And if your plate grow cold, heat it again as before, being very carefull to keep it from duſt or filth. This done (having well-wiped the fleſhy part of the palm of your hand) tap it upon the Plate, till all the little ſpots of varniſh are equally ſpread upon the Plate.

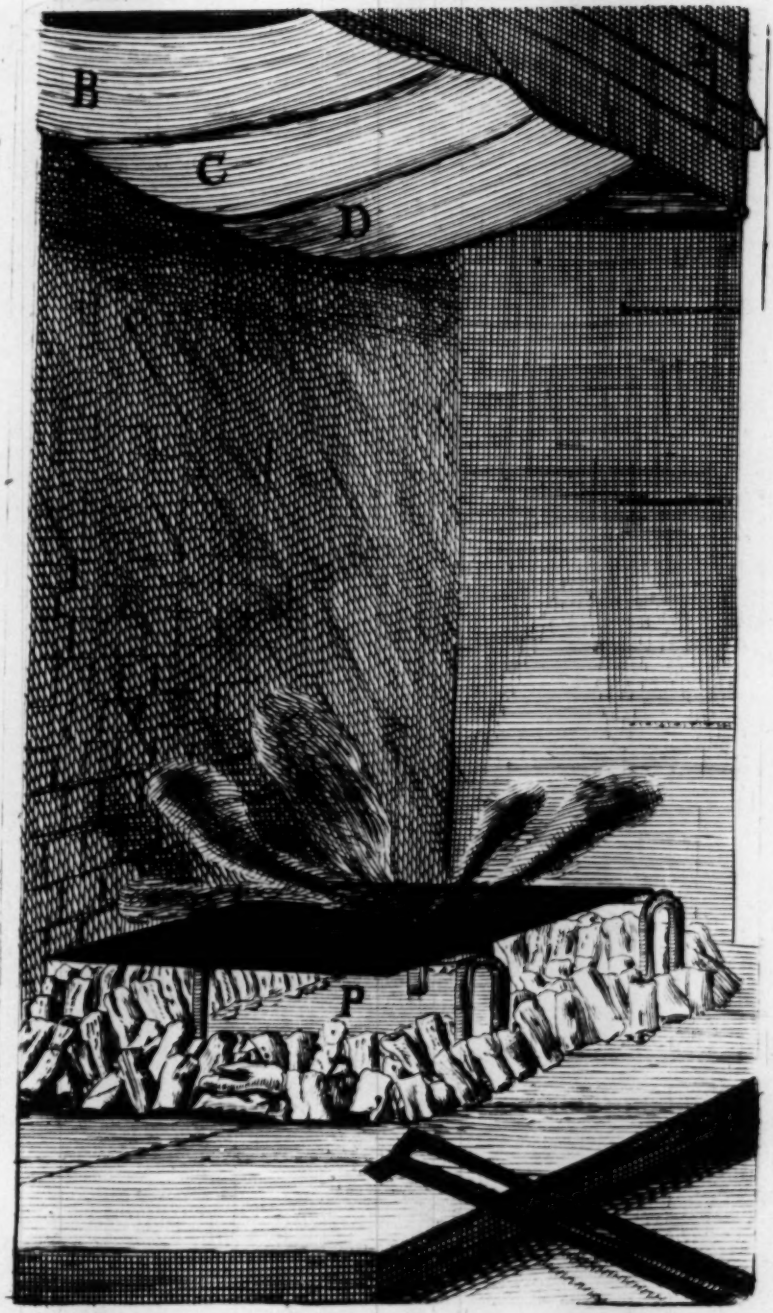
After this tapping, wipe or ſlide your hand upon the Varniſh, to make it more ſmooth, and equal: Take great care that there be not too much Varniſh upon the plate, and that your hand be not ſweaty; becauſe the ſweat mixing with the Varniſh, wil cauſe little bubbles, when it is applied to the fire, which will become little holes in the Varniſh.

Your Varniſh being thus ſmoothed upon the Plate, the way to black it is thus. Take a great tallow-candle lighted, which burneth clear; let it have but a ſhort ſnuff; then place the corner of your plate againſt the wall, with the varniſhed ſide downward, as the lower figure in the Plate repreſents it to you.

Take heed that your fingers do not touch the Varniſh: then take your candle, and apply the flame to the Varniſh, as cloſe as you can without touching the Varniſh with the ſnuffe of the candle: guide the flame all over, till you ſee it perfectly black; keep it then from duſt or filth untill it be dried.

Plate 1, 2.

Sect. 8.


B
C
D
P

Sect. 8. *How to dry, or harden the Varniſh upon the Plate.*

KIndle a fire in a chimney of ſuch chark-coles as are not ſubject to ſparkling, and when they are well kindled, range them in a ſquare ſomewhat larger than the Plate, as the letter P ſheweth you. Before you place your plate to be dried, hang up a cloth in the chimney to hinder and keep off any ſoot or filth from falling down upon it, as you may ſee by the letters B C D. Then take your plate and place it in the middle of the range upon two low Andirons, as the letter O directs: this done, you will ſoon perceive the Varniſh to ſmoke; and when you perceive the ſmoke begins to abate, then take off the plate from the Andirons, and with a ſtick pointed ſcratch near the ſide of your plate; and if it eaſily take off the Varniſh, then you muſt lay it again upon the Andirons for a little ſpace: Then take it off, and touch it again with your pointed ſtick, and if it take off the Varniſh not too eaſily, then immediately take it from the fire and let it cool.

If the Varniſh do much reſiſt the point of the ſtick, then preſently throw on ſome cold water on the back-ſide of the plate to cool it, ſo that the heat of the plate may not cauſe the Varniſh to be too hard and brittle.

Sect. 9. *How to chooſe your needles wherewith to make your tools to etch with.* Pl. 3.

CHooſe ſome broken needles of ſeverall ſizes and bigneſſe, ſuch as break neat without bending, and of a fine grain. Then take round ſticks of a good firm wood, not apt to ſplit, of the length of half a foot or ſomewhat leſſe, of the thickneſſe of a good large quill: at the ends of which ſticks fix in your needles, ſo that they ſtand out of the ſticks about as much as you ſee in the figure following.

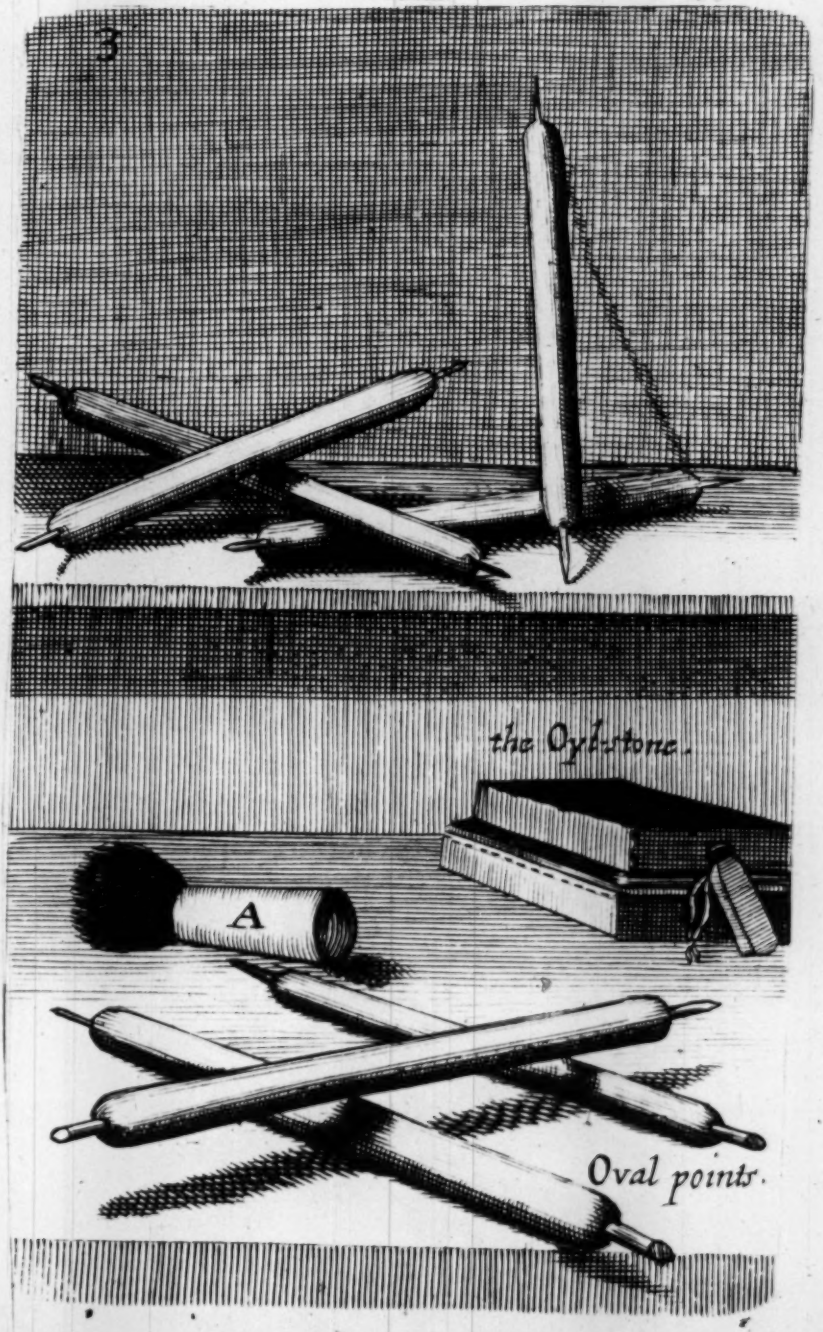
Sect. 10. *How to whet the points of your needles.*

THere are two wayes of whetting your needles, the one round, the other ſloping.

You muſt have an oyl ſtone with a fine grain to whet your needles upon. For thoſe you would have to be round, you muſt upon the oyl-ſtone whet their points ſhort, not as your ſowing needles are, but as the Figure ſhews you. For the other which you intend to make ſloping, firſt upon the oyl-ſtone make it blunt, then holding it firm and ſteddily, whet it ſloping upon one ſide only, till it come to a ſhort roundiſh Oval, for the long Oval is not ſo good to work with.

You will need a ſoft bruſh-pencill, to bruſh off the varniſh, which you work off with the ſtrokes of your needle, as is repreſented by the Letter A.

Sect. 11.


3
the Oyl-stone.
A
Oval points.

## Sect. 11. *To preſerve your Varniſh upon the plate.*

YOur plate being varniſhed, place it upon a low desk or ſuch like thing, and cover that part which you do not work one with a ſheet of fine white paper, and over that a ſheet of brown paper, whereon you reſt your hand to keep it from the varniſh when you work.

When you have occaſion to uſe your Ruler to draw ſtreight lines, lay ſome part of it upon the paper, that it may not rub off the varniſh. But above all things have an eſpeciall care that no filth or duſt gets in between the paper and the varniſh, for that will cauſe ſome holes and ſcratches in the varniſh.

## Sect. 12. *How to etch.*

IN etching you will have occaſion to make divers ſorts of lines or hatches, ſome bigger, ſome ſmaller, ſome ſtreight, ſome crooked. To make theſe you muſt uſe ſeverall ſorts of needles, bigger or ſmaller as the work requires. The great lines are made theſe three ſeverall wayes,

1. By leaning harder on the needle, and the point being ſhort and thick makes a larger paſſage; but the point being round it will not cut the varniſh clear.

2. By making divers lines or hatches, very cloſe one to another, and then by paſſing them over again with a thicker needle; but this way is both too tedious and withall very difficult.

3. By making the lines with an indifferent bigg needle,

needle, and letting the *Aqua fortis* lie the longer on it. Thoſe needles which you whet ſloping with an Oval, are the beſt to make the large lines withall, becauſe with their ſides they cut that which the round points cannot. Pl. 4.

## Sect. 13. *How to guide your needles upon the plate.*

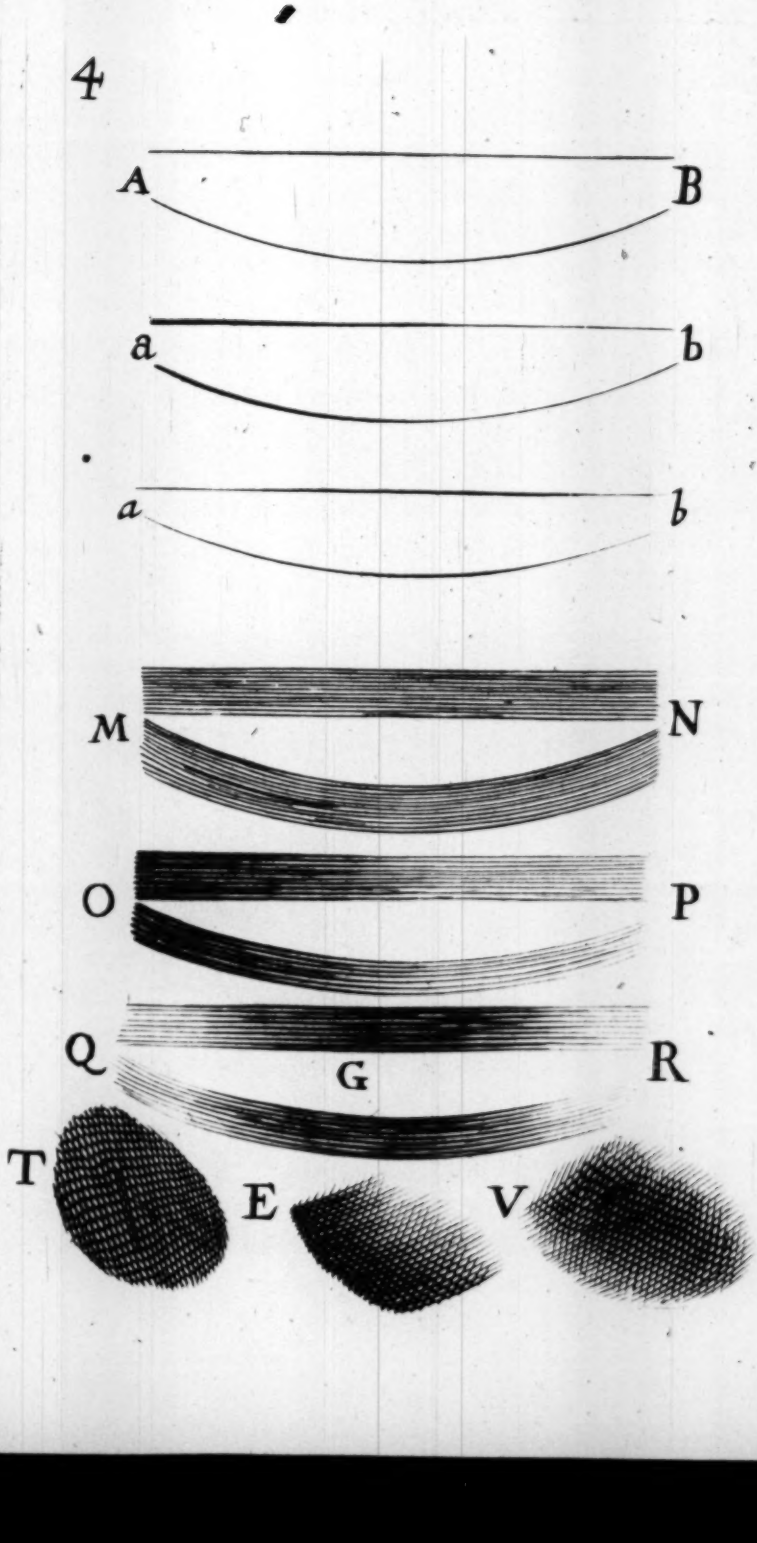
YOu may perceive from what is ſaid, that thoſe points which you intend to make uſe of, in graving with *Aqua fortis*, ought to be whet exactly round, that they may turn more freely upon the plate. Some of thoſe round points muſt be whet very ſharp, that they may cut the varniſh and copper more eaſily. If you find that your point cuts not freely and ſmoothly, 'tis becauſe it is not whet exactly round.

If you have occaſion to make your lines or hatches of an equall bigneſſe from one end to the other, whether they be ſtreight or crooked, as thoſe two lines in the letters A B repreſents, you muſt, as reaſon will tell you, lean on your point with an equall force from one end to the other.

If you would make your ſtrokes thicker at one end then at the other; as the ſecond letters A B ſhews you, then you muſt lean on your point with your hand harder at the beginning, and by degrees lighter and lighter towards the end.

If you would have your ſtrokes to be ſuch as are repreſented in the third figure marked alſo a b, that is to ſay, larger in the middle then at either end, you muſt lean gently at the beginning, & then by degrees harder and harder till you come to the middle, and then

4



then by degrees lighter and lighter till you come to the end.

Theſe three ſorts of lines or hatches may indifferently ſerve for all manner of hatching your ſhadows in any deſign whatſoever, as appears in the figures, M N. O P. Q G R. T E V. wherein is manifeſt, that the ſhadowing is but a reiteration of the ſame ſtrokes cloſe one to another.

If you deſire that your etching with *Aqua fortis* ſhould look as like graving as may be, you muſt lean hard upon your needle in thoſe places where you would have the lines appear deep and large, that is, ſo hard that the needle may make ſome impreſſion in the copper. And by the ſame reaſon you are to lean very light on thoſe places which you would have appear faint and ſmall.

If it happen that you have made ſome lines or hatches too ſmall, and are deſirous to enlarge your ſtroke, you muſt paſſe it over again with a round ſhort point, of ſuch a thickneſſe as you deſire your line ſhould be of, and lean ſtrong and firmly on thoſe parts of the line which you would have large and deep.

If at any time, by reaſon of the large lines or hatches, which you were to make, you have uſed an Oval point (which is the beſt to cut the varniſh) you muſt afterwards, with one of your large needles whetted ſhort and round, paſſe in the midſt of the ſaid ſtroke firm and ſtrongly, but eſpecially in thoſe places which you would have large and deep.

Sect. 14. *How to uſe the Oval points to make large ſtrokes in etching or graving with* Aqua fortis. Pl. 5.

YOu may ſee in the figure A B C D the form of thoſe Oval points, and that part next to C deſcribes the end of it, and B D the ſides. The manner of holding it is much after the manner of holding a pen, only the flat ſide whetted is uſually held towards the thumb, as is repreſented in figure iii. Not but that it may be uſed otherwiſe, with the face of the Oval turned towards the midle-finger, as it is ſhewn in Fig. iv. but I have found the other manner to be much better, becauſe that way you may more firmly and with more ſtrength inforce your ſtrokes.

Now to ſhew you how to make your ſtrokes large and deep, and that theſe Oval points are the moſt proper for it, take notice of the two upper firſt and ſecond figures, which are made the larger purpoſely, that you may the better apprehend what ſhall be hereafter ſpoken of it. Your own reaſon will tell you, that if you lean lightly in making your ſtrokes, thoſe ſtrokes will accordingly be leſſe deep, ſmaller, and more faint; for the harder you lean, the deeper and larger your ſtrokes will be. Of this you have an example in the third figure marked r n s; where leaning lightly at the beginning, *viz.* r. and then harder by degrees to n. and afterwards lighter by degrees to s. you make your ſtroke bigger or ſmaller according to your leaning on it, as you find repreſented in the ſaid third Figure.

But if you would have your ſtrokes come very ſmall and delicate at the end, then with the point of your

Fig: I

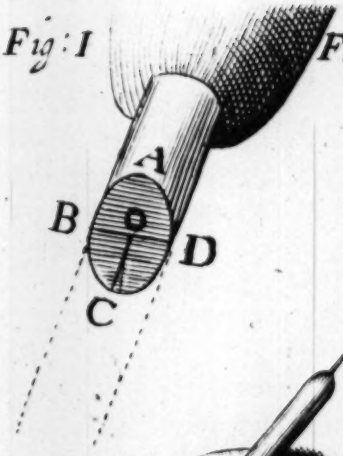



Fig: II

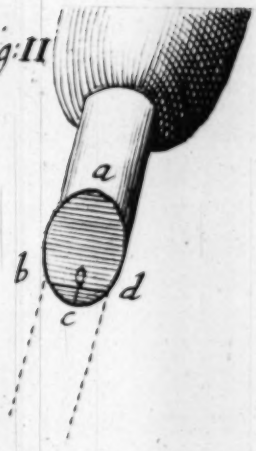
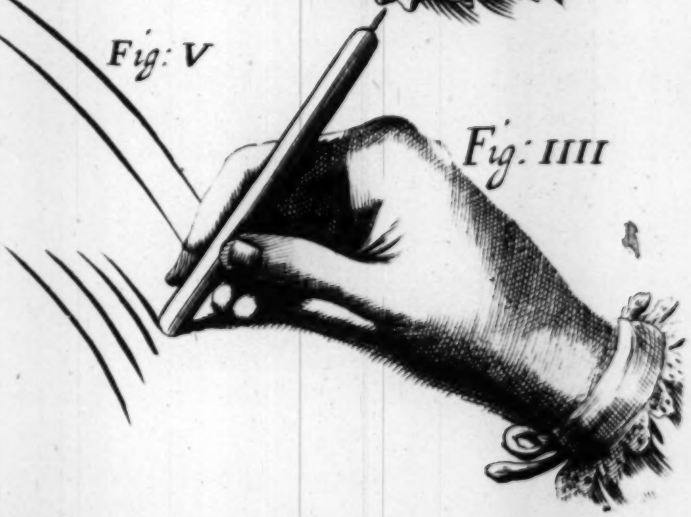
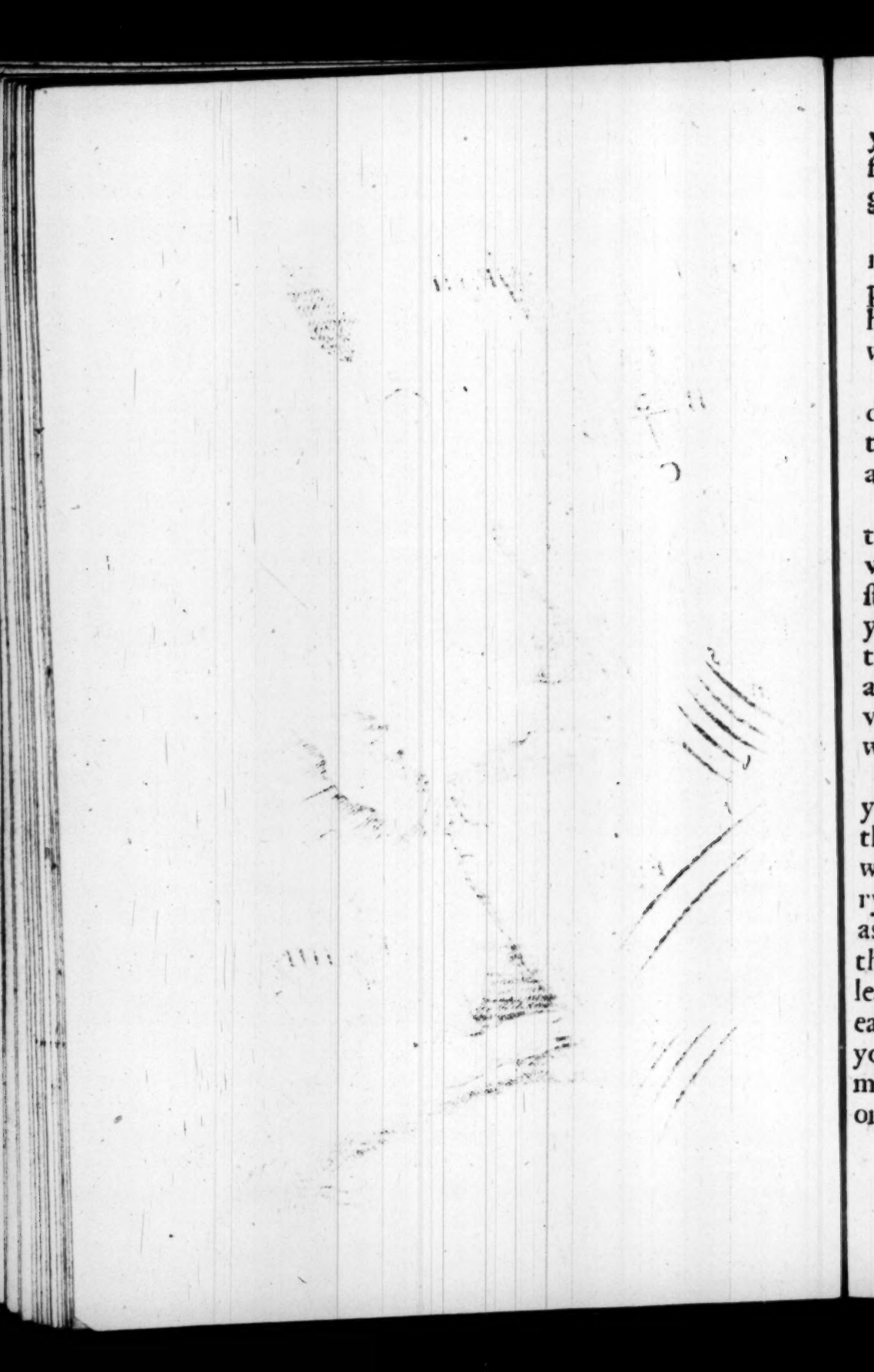



Fig: III

Fig: V

Fig: IIII





your ſmall needle lengthen out your ſtroke, as you find it repreſented in the two ſtrokes of the fifth Figure.

Some will firſt make their ſtroke with a round needle, and then paſte it over again with an Oval point to inlarge it in thoſe places which they would have deeper and bigger; but the other is the better way.

They that know how to grave after they have done etching their lines with *Aqua fortis*, may with the aſſiſtance of their graver make them more neat and deeper.

I ſhall only think it not amiſſe to adviſe you by the way, that in making your ſtrokes with your Oval points, you muſt hold them as upright and ſtreight in your hand as you can, and accuſtome your ſelf to ſtrike your ſtrokes firm and bold, for that will contribute very much to their neatneſſe and clearneſſe. To do this the better, you muſt be very carefull to have your points alwayes well whetted.

In thoſe places which you would have appear in your piece by way of Landskip, that is at the furtheſt diſtance from the ſight, as alſo in thoſe places which approach neareſt the light, you muſt uſe a very ſlender point, leaning ſo lightly with your hand, as to make a ſmall faint ſtroke. But when you come to thoſe places which you would have more ſhadowed, lean ſo much the harder, as that when you come to eat it in with your *Aqua fortis*, you may cover moſt of your faint places at one and the ſame time, for you muſt know that thoſe ſtrokes, which you lean lighteſt on, do little more then raiſe up the varniſh. So that

when

when you ſhall apply your *Aqua fortis* to etch it, it will appear much fainter then in thoſe places where you have leaned with greater force, though the ſtrokes are done with one and the ſame needle. Inſomuch, that when you ſhall have cover'd the greateſt part of your faint places with your mixture, thoſe places, whereon you lean'd more ſtrongly, will appear deepeſt, though they were all covered at the ſame time. In your working be carefull to bruſh off all the duſt which you work off with your needles.

Sect. 15. *How to prepare your plate to receive the* Aqua fortis.

YOur plate being finiſhed and ready for the *Aqua fortis*, bruſh off all the rubbidge and duſt that is in the ſtrokes. And if there happen to be any ſtrokes which you would not have the *Aqua fortis* eat into, or any places where the varniſh is rubb'd off, then melt your mixture of oil and greaſe which you have made, and with a pencill, bigger or ſmaller, according to the proportion of thoſe places which you would mend, cover thoſe places indifferently thick, and the *Aqua fortis* will not eat in.

This done, take a bruſh or pencill, or ragg, and dip it into the ſaid mixture of oil and greaſe, and rub the back-ſide of your plate all over, to prevent the *Aqua fortis* from eating any part of it; but take heed that your mixture be not too thin or liquid, for if it be, when you caſt your *Aqua fortis* on the plate, it will force it from thoſe places whereto you had applied it.

When I find my mixture begin to grow cold, I com-

monly uſe to put ſome ſmall quantity of it on my left hand, thereby to keep it warm, to be uſed as occaſion ſhall require.

In the winter time, eſpecially when the weather is cold and moiſt, before you apply your *Aqua fortis* to the plate, it will not be amiſſe to warm it gently by the fire, to dry up the moiſture, which the plate is ſubject to by reaſon of the diſtemperature of the weather. Nay if it be not warmed, it may haply endanger the breaking up of the varniſh, upon the firſt pouring of the *Aqua fortis* upon the plate.

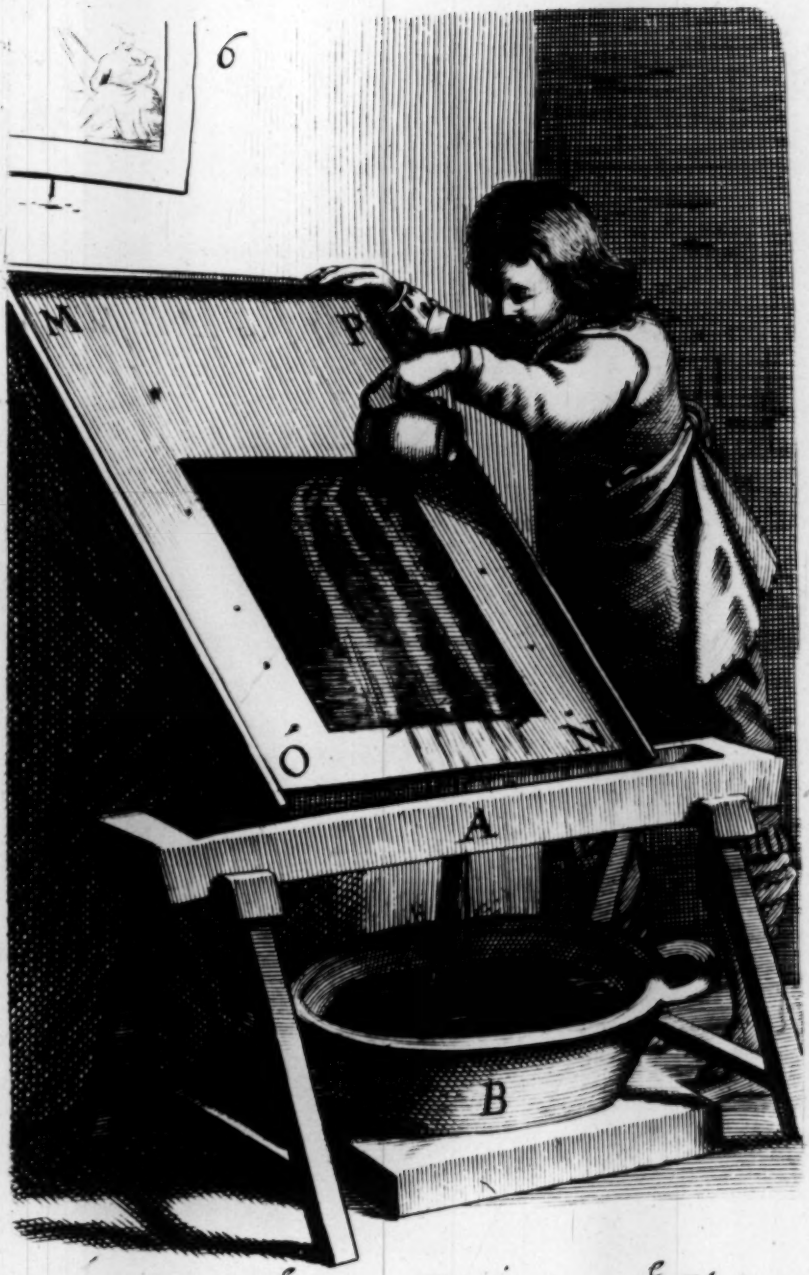
Sect. 16. *How to make your trough and frame to hold your plate when you would poure the* Aqua fortis *on it.*

THe Figure oppoſite hereto repreſents both trough and frame. The letter A is one intire piece of Elm or Oak, of about four inches thick and ſix inches broad, and may be of ſuch a length as you ſhall think fitteſt for your uſe. You muſt cut this piece of wood into the faſhion of a trough, as the figure ſheweh you, making it a little deeper in the middle, that the water running thither may fall through a hole there made for that purpoſe. Set this upon a Treſſel with four leggs as the figure ſhews you.

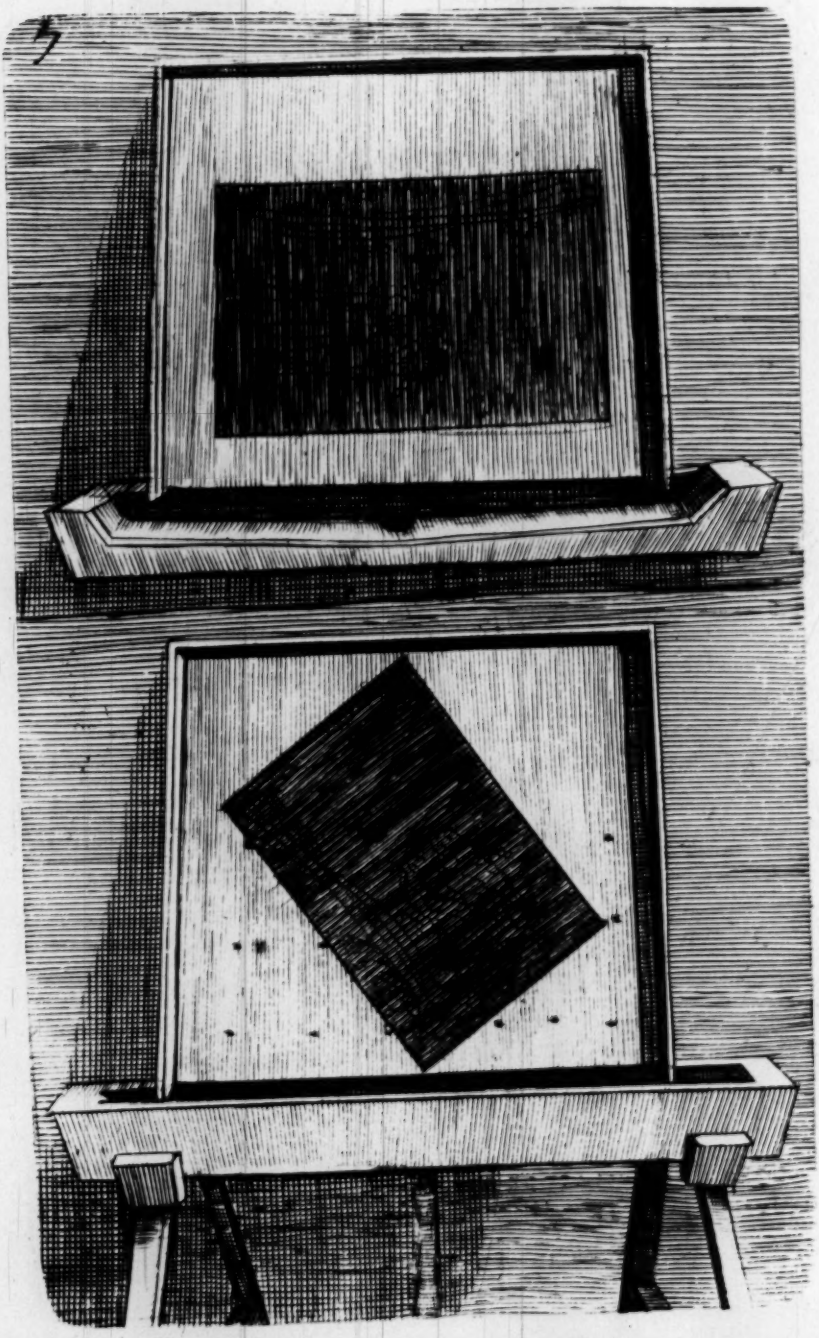
Under the hole in the trough, place an earthen pan well leaded on the inſide, as you ſee in the figure B; and therein put your *Aqua fortis*, let it not ſtand too much below the trough.

The figure M N O P is one intire board of an indifferent largeneſſe as you may judge by the figure. About the two ſides and top of which board you muſt faſten a ledge about two inches broad, to keep the *Aqua fortis* from running off from the ſides, when you poure it on. The inſide of this board and trough muſt be covered or primed over with a thick oil-colour, to hinder the *Aqua fortis* from eating or rotting the board. Place the lower end of this board in the trough leaning ſloping againſt a wall or any other thing. In the board you muſt fix ſeverall peggs of wood or nails whereon to reſt your plate.

The




*How to poure y^e^ Aqua Fortis upon y^e^ Plate.*



The figure Q deſcribes a little earthen pot well leaded on both ſides, which you muſt have to take up your *Aqua fortis* out of the panne, and to pour it on the plate.

Sect. 17. *The manner of caſting the* Aqua fortis *upon the plate; as alſo how to cover the places, that are fainteſt and moſt remote from the eye, with the fort-mentioned mixture, as occaſion ſhall require.*

HAving obſerv'd the way of placing the plate for the receiving of the *Aqua fortis*, there remains only to conſider the method you are to follow in caſting it on as occaſion ſhall require; for in ſome works it will be neceſſary to caſt it on ſeverall times, for the reaſons hereafter to be mentioned. Having a ſufficient quantity of *Aqua fortis* in your pan, fill your earthen pot, and poure it upon your plate, beginning at the top, and moving your hand equally ſo that it may run all over the plate, taking great heed that the pot touch not the plate. Having ſo pour'd 8. or 10. times, the plate being as in the poſture expreſs'd in the precedent figure, you muſt turn it croſſe-wayes, as is repreſented in the upper part of the following figure marked C, and poure on it as it lies that way ten or twelve times as before: That done, turn your plate ſuitably to the poſture expreſs'd by the lower part of the following figure aforeſaid, that is to ſay, corner-wiſe, and as it lies ſo, poure thereon eight or ten times; pouring the *Aqua fortis* thus at ſeverall times, for the ſpace of half a quarter of an hour, more or leſſe, according to the ſtrength of the water, and nature of the copper.

For if the copper be brittle and hard, there muſt be the leſſe time allow'd for the pouring on of the water; but if ſoft, the more.

And whereas you may not haply at the firſt be ſo well aſſured of the ſtrength of your water, and the preciſe quality of your copper, it will not be amiſſe to give you ſome directions how to know both, that you may proceed according to the ſtrength or neatneſſe which you expect to find in your work. For there are ſome pieces require more force, and ſome more tenderneſſe then others. To know therefore the nature of your copper, and the ſtrength of your water, that they be ſuch as the work you intend doth require, pour of it on your plate, for the firſt time, as is before mention'd, for the ſpace of the fourth part of a quarter of an hour. Then take away the plate, and caſt on it a quantity of fair water, holding the pot at a good height from the plate, to waſh off the *Aqua fortis*; for if it be not clean waſh'd, the work will appear green, and conſequently, you cannot ſo well perceive the operation of your *Aqua fortis*.

That done, hold your plate before the fire, at ſuch a diſtance, as that, without melting the mixture which may be upon it, the fair water may be dried up. Then take a little piece of charcole, and therewith rub off the varniſh in ſome place where the ſtrokes are faint: and if you find that the *Aqua fortis* hath eaten deep enough in thoſe faint places, melt your mixture, and having plac'd your plate upon a desk or eaſell, take of the ſaid mixture with a pencill fit for your work, and cover therewith all thoſe places which you deſire ſhould be tender, and

free

free from any further operation of the *Aqua fortis*, taking great care that you beſtow mixture thick enough on the places which you would have covered, that is, that the mixture may fill up the ſtrokes. And it is at this firſt operation, that you are to cover all the fainteſt and ſweeteſt places.

Having held your plate ſo long to the fire that the moiſture is quite taken off (a thing only neceſſary in the winter time) put it again upon your board, and pour on your water as before, for the ſpace of about half an hour, turning your plate from time to time according to the ſeverall poſtures, as is before expreſſed. That done, waſh off the *Aqua fortis* with fair water as before, and dry your plate by the fire, taking eſpeciall care that you melt not the mixture which you had before put upon it.

Your plate being dri'd put it upon the desk or eaſell, as before, and having melted your mixture, cover therewith thoſe faint places and hatches that are next in point of faintneſſe to thoſe that you had covered before. The ſeverall degrees of faintneſſe in the hatches you have ſeverall examples of in the following figure.

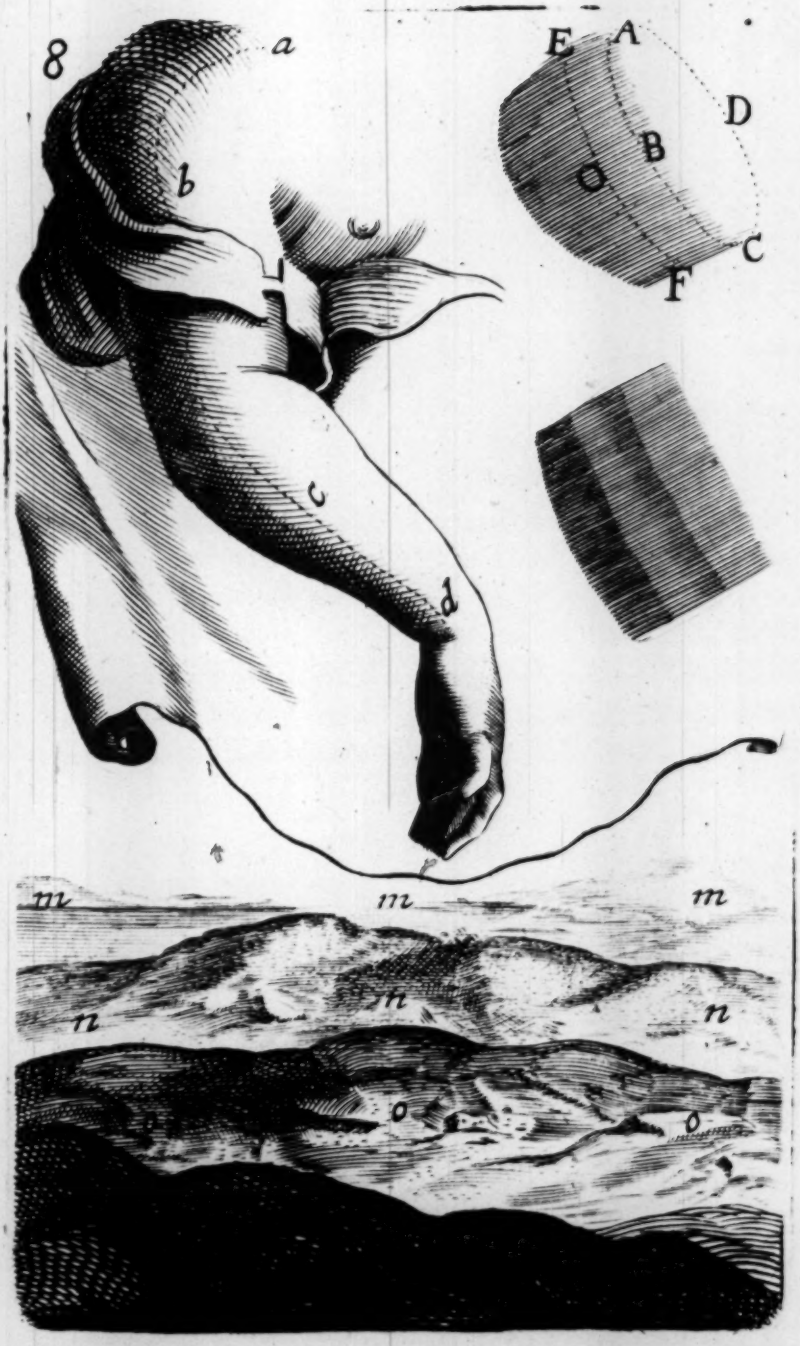
You have been directed before how to guide your needles and Ovall points, and I have told you how you were to lean ſtrong and firmly on the places where you would have the ſtrokes to be black and deep, and ſlack and lighten your hand where you would have them faint and tender, a thing which very much facilitates the operation of the *Aqua fortis*. For inſtance, when you have at the firſt time with your mixture cover'd that part which is enclos'd by the line A B C D. which makes a kind of

an Oval: you come at the ſecond time to cover that ſpace which is between the line A B C: and the line E O F. conceiving well, that having ſuffered the *Aqua fortis* to eat in for the time requiſite, it will have an effect ſomewhat near that which you expected.

At the upper end of the plate you have the form of a woman's arm, wherein you may perceive, by the line marked a b c d; as alſo by the other which lies yet nearer the ſhadow, how the ſmall hatches and fainter places are ordinarily covered at two ſeverall operations, as occaſion ſhall require; though in the forementioned example of the arm, one time covering might haply ſerve.

I have alſo thought fit at the bottome of the plate, to ſet down four ſeverall pieces of ground in landskip, the firſt marked m m m, is the firſt covered, as being the fartheſt of all from the eye, then at another operation that marked n n n; then that marked o o o: there being only that marked p, wherein the *Aqua fortis* eats in full and deep.

It may be objected, that the light or hard leaning on the points in their proper places in working, may make the ſtrokes and hatchings ſo, as that the *Aqua fortis* may eat in anſwerably to your expectation, without the trouble of covering any places with your mixture: To this I anſwer, that the work will not altogether have that effect, but will be like the ſecond plate, which I have purpoſely made after that manner: for though you can lean harder on ſome places, and lighter on others; yet the *Aqua fortis* being pour'd equally all over the plate, during the whole time, it muſt follow that ſome places


8
a
b
c
d
E
A
D
B
C
F
m
m
m
n
n
n
o
o

places will not be ſo ſweet and tender as they ought, and ſhall come farre ſhort of that beautifull and lively continuity which you may perceive in thoſe lines and ſtrokes where you uſe the mixture.

If it happen, that when you dry your plate by the fire to take off the moiſture, as hath been ſaid before, that the mixture for want of care, do melt and run into thoſe hatches and ſtrokes where you would have the water to eat in further; wipe the place with a ſoft cloth, then take the crum of ſtale bread, and rub the place therewith till ſuch time as you conceive you have taken off all the greaſineſſe. This remedy is only appliable in point of extremity; for you are to note, that it is impoſſible to take out the greaſe ſo clearly, but that it will ſomewhat hinder the operation of the *Aqua fortis*. And therefore there muſt be the more care taken to prevent it.

Having thus cover'd your places as occaſion requires, for the ſecond time place your plate on the board aforeſaid, and pour on it your *Aqua fortis* for another good half hour.

That done, waſh it with water, and dry it as formerly, and cover the places you think requires it for the third time, for you muſt know that the faint places are to be proportionable to, that is, more or leſſe, according to the ſeverall deſignes and pieces you work upon. When you have done this, pour on your *Aqua fortis* upon it for the laſt time, and it is at this operation, that you are to beſtow more or leſſe time above the precedent, according to the nature of your work.

For inſtance, if there be in your plate ſuch hatches and ſhadows as require much depth and fulneſſe, and conſequently muſt be very black, you are to pour on the *Aqua fortis* for the ſpace of an hour or better at this laſt operation alone, that is proportionably to the precedent. You may well imagine that there can be no certain rule given in generall, either as to the convenient covering of the places, or the preciſe ſpace of time that is to be obſerv'd in caſting on the water: for it is not to be conceiv'd that *Callot* pour'd as much water on his little pieces as he did on thoſe that were greater.

I told you before, how that you may rub off your varniſh or ground as occaſion requires, with a charcole, to ſee whether the water hath eaten in deep enough: you are therefore to judge of the ſpace of time that you are to employ in pouring on the *Aqua fortis*, by the works you are to do, and where I tell you that you may beſtow an hour and better on the laſt operation, my meaning is, in pieces that require much blackneſſe. All which notwithſtanding, it is to be conſidered that all copper and all ſorts of *Aqua fortis* not being of the ſame ſtrength, nature and equality, you are to proceed accordingly.

Having therefore pour'd the *Aqua fortis* upon your plate for the ſpace of an hour, more or leſſe, as the work requires as is before ſaid, waſh it again with fair water; but you ſhall not need to dry it as in the precedent operations; but put it wet as it is upon the fire, till your mixture be all melted; and then wipe it very clean on both ſides with a linnen

nen cloth, till you have quite taken away all the mixture.

Sect. 18. *How to take the ground or the varniſh off the plate, after the* Aqua fortis *hath done its operation.*

TAke a char-cole of willow or ſome ſuch ſoft grain'd wood, and take off the rinde of it, and pouring fair water on the plate, rub it with the char-cole with an even hand, as if you were to poliſh copper, and it will take off the varniſh. Be carefull that no duſt or filth fall upon the plate; as alſo that the char-cole be free from all knots and roughneſs, for it might occaſion ſmall ſcratches in the plate which it would be difficult to get out, eſpecially in thoſe places which are moſt faint and ſweet. Note that you are not to uſe ſuch a burnt cole as you do to poliſh withall.

When the varniſh is taken off, the plate is of an unpleaſant colour, by reaſon of the operation of the fire and water upon it. To reduce it therefore to its proper colour, take ſome ordinary *Aqua fortis*, to which add two third parts of fair water, and with a little linnen ragg dipp'd therein, rub your plate all over, and you will find it come to its ordinary colour and beauty.

That done, take immediately a dry linnen ragg, and wipe it all over ſo as to take off all the foreſaid water. Then hold your plate a little to the fire, and pour on it a little ſallad-oyl, and with the brims of an old beaver roll'd up, rub your plate well all over with it; then wipe it with a dry cloth.

This

This done, you will perceive plainly if there be any places that require to be touch'd with the graver, as it for the moſt part happens, eſpecially in thoſe places that are to be moſt black. For you may well judge, that when there are many ſtrokes and hatchings one cloſe to another, there is ſo little varniſh between, that the *Aqua fortis* commonly takes it off, becauſe it eats under it.

But if this happens when you caſt on your water, you may preſently cover thoſe places where you perceive the varniſh to break up with the mixture, it being much more eaſie to touch it afterwards with the graver, then when the *Aqua fortis* hath made a pit therein, which at the working of it off at the preſſe cauſes a great black patch; but after ſome number of coppies taken off, the ſaid patch ſeems to be white, becauſe there is not any thing for the ink to faſten on.

Having therefore in good time cover'd that part, you have no more to do but to perfect thoſe ſtrokes and hatchings to make them more firm and beautifull; which done, your plate is ready for the Rolling Preſſe.

---

Sect.

# OF SOFT VARNISH.

Sect. 19. *How to make it, and the uſes it is to be put to.*

TAke an ounce and a half of virgins wax, the beſt and whiteſt, one ounce of Maſtick *in tears*, neat and pure, half an ounce of Spaltum; grinde the Maſtick and the Spaltum ſeverally very fine; then melt your Virgins wax in an earthen pot well leaded, and when it is very hot, ſtrew in your beaten Maſtick all over, and ſtir them together with a little ſtick till ſuch time as you may judge the Maſtick to be wel incorporated with the wax, & after that ſtrew in alſo the Spaltum, as you did the Maſtick before, and ſtirre the whole mixture together upon the fire, till the Spaltum be likewiſe well diſſolv'd and mixt with the reſt, which is likely to be done in the ſpace of half a quarter of an hour; Then take it off from the fire, and let it cool a little; Then pour in the ſaid compoſition into a baſin of fair water, and firſt wetting your hands (which muſt be very clean) in the water, take out the ſaid mixture before it be quite cold, and having well moulded it to ſqueez out the water, roll it up into pieces about an inch diameter, and two or three inches long.

You may if you pleaſe to make it the more free from any kind of filth, as you pour it into the baſin of water, paſſe it through a fine linnen cloth; but it is as well not to paſſe it through, but after it

is

is moulded to wrap it up in a piece of fine linnen cloth or Taffata, two or three times double, and ſo uſe it.

You are not to put in ſo much of Virgins wax in Summer as in Winter. There are ſeverall other compoſitions of ſoft varniſh that might be us'd, but this I judge to be the beſt of any that I have found.

Sect. 20. *The manner of laying your ſoft Ground or varniſh upon the plate.*

HAving your plate well poliſht, and cleanſed from greaſe, take the ſoft varniſh prepared as is before mentioned, and put the ſaid plate over a chafing-diſh wherein a moderate fire hath been kindled, and heat it in ſuch ſort, that the varniſh may eaſily diſſolve as it paſſeth through that which enwraps it: The plate being thus heated, take the varniſh cover'd as aforeſaid, and applying it by the end of the roller, ſpread it upon the plate while it is hot, carrying it lightly over from one ſide to the other, untill the plate be covered thin and equally all over: this being done, and having a quill that hath a ſmooth feather, take it, and with the broad ſide thereof ſweep it gently over the varniſh and ſwiftly, to the end it do not burn. The firſt time, the feathered end of the quill ſhall onely ſerve to ſpread the varniſh over the plate; but afterwards make choice of another, the beſt feathered quill you have, and go it over again lightly, that the varniſh may be extended very equally all over the plate and very thin;

thin; for when it is laid on too thick, your work cannot be ſo fine and delicate as otherwiſe it would; and if the plate ſhould cool, and conſequently the varniſh, you muſt heat it a little again, to the end that it may receive the varniſh as it paſſeth through the linnen. Alſo take great care, for your better eaſe in the ſpreading of it, that your plate, and by conſequence your varniſh, happen not to burn: Which that you may the more eaſily perceive, take notice, that when it is too hot it caſts it ſelf into little clots and pumples, by reaſon of over much heat of the plate.

As ſoon as you have evenly ſpread your varniſh upon your plate, black it over with the flame of a candle after the ſame manner as I have already mentioned in ſpeaking of your hard varniſh: provided only, that the flame approch not too near; this is to be done in one caſe rather then in another, and that is, when having blackt it all over, you perceive that the ſmoke hath not entred within, by reaſon of its growing cold: Therefore it will be convenient to put your plate again over your chafing-diſh, and you ſhall ſee, that as ſoon as the plate is hot, the varniſh will diſſolve; and by conſequence, the black which the ſmoke hath left upon the varniſh, will altogether pierce as farre as the plate.

Be carefull above all, in doing this, to have a moderate fire, and ſtill to remove your plate, in ſuch ſort that the ſaid varniſh melt equally all over without burning.

After that, let your plate cool, and when you ſhall think fit to work upon it, place your deſign altogether after the ſame manner, as upon your hard varniſh

varniſh, (the backſide thereof being rubb'd with the duſt of red chalk) excepting onely, that you muſt not lean ſo hard on with your point in drawing the out-lines of your deſign, leſt by ſo doing the needle cutting through the paper ſhould raze the varniſh.

Next you proceed to work upon your plate with the ſame kind of points, as thoſe which are mentioned for hard varniſh, excepting thoſe Oval points, which many that etch with ſoft varniſh never uſe: Nevertheleſſe they are very commodious, eſpecially for the working any piece of Architecture, or making of large ſtrokes; and it is at the choice of thoſe that grave, either to uſe them or not to uſe them: But there is one thing to be conſidered, of which you are to have a very great care, and that is, how to keep the ſoft varniſh upon the plate, for it is very apt to be rubbed or razed off, if any thing never ſo little violent happen to touch it: There are ſeverall wayes of keeping it unhurt; for example, working upon the plain, or on a desk, you may have on the ſides of your plate two little boards, of what bigneſſe you pleaſe, or two little books of the ſame thickneſſe, and lay another thin board upon them, ſo as that it may not touch the plate, and reſt your hand upon this board as you work.

There are ſome which work with their plate laid upon a kind of Eaſle, as a Painter doth when he paints; but all men cannot ſet themſelves to this manner of working, although it is very much approved of, for many reaſons which hereafter ſhall be alledged.

To

To work upon the ſaid ſoft varniſh, you muſt handſomely place your board upon a desk, and then lay a leaf of brown or white paper upon it; ſo as it be fine and ſmooth it imports not much: Lay then your plate upon it. Afterwards take a linnen cloth without any kind of Seam, which hath been often put to other uſes, to the end it may be the more gentle and ſoft. Then double it three or four times in folds, and lay it upon your varniſh; whereon reſt your hand, as you uſe in like manner ſheets of paper upon hard varniſh: And the reaſon wherefore this caution is to be obſerved by you, is, leſt the buttons of your ſleeve ſhould rub off the varniſh.

Be very carefull, that there be no duſt or filth found upon your varniſh; if you chance to ſpie any upon your plate, wipe it lightly off with one of your large ſoft pencills, conſidering that there is much more care to be had for the preſerving of ſoft varniſh then of hard; and that was the cauſe which made the Author to leave it off, eſpecially in pieces that required long time and much pains, it being much more eaſie to make a firm winding-ſtroke upon hard varniſh then upon ſoft; for as much as the hardneſſe of the varniſh holds your point as it were engaged, which makes the ſtrokes to be the deeper, and better, imitating the firmneſſe and neatneſſe of the ſtrokes of a graver. Moreover, when you are at work in ſoft varniſh, you muſt have a ſpeciall care, leſt any other perſon then a practitioner of your Art, touch or intermeddle with your plate; and if any kind of greaſie matter happen to drop upon it, your plate

will

will be incurable: but if it ſhould chance to fall upon hard varniſh, you may then make it clean with a linnen cloth, or crumms of bread.

Thoſe that work upon ſoft varniſh, if they put their plate on a desk or eaſle, they are not in ſo much danger of rubbing off their varniſh, nor do they need ſo often to wipe away that which comes off in working; for as much as the plate being placed obliquely, the ſuperfluous matter falls away of it ſelf. I have not thought fit to make any reſemblance of it, ſince it is not likely that any of thoſe who intend to etch after this manner, can be ignorant how a Painter works upon an eaſle, there being no other difference but onely this, that a Painter uſeth a pencill, and a Graver his etching-tools. The truth is, that the Artiſt ought to reſt his plate very firm, eſpecially when he is very intent upon the making of any exact ſtrokes.

*Callot* wrought upon hard varniſh after the ſame manner, but it was to the end that his health might be the leſſe impaired, ſuppoſing that to ſit ſtooping to his work (though it were never ſo little) would be hurtfull to him.

Sect. 21. *How to border your plate, that it may contain your* Aqua fortis.

GEt ſoft wax, either red or green; if it be in Winter, ſoften it at the fire; in Summer it wil be ſufficiently ſoft of it ſelf: In the managing of it, put it round the brims of your plate, raiſed about half a quarter of an inch from the ſurface of the plate, being as it were a little rampart; in ſuch ſort, as that

that placing your plate very levell, and afterwards pouring your *Aqua fortis* upon it, the water may be retain'd by the means of this border of wax, ſo as, that the water may be equally diffuſed all over; but before you pour it on (to prevent its ſoking through between the wax and the plate) if need require, heat a little piece of Iron, and run it over on the out ſide where the plate cloſeth with the border.

Having thus bordered your plate, take common *Aqua fortis*, ſuch as is uſed by the Refiners, pure and good, and mingle it with common water, being in quantity about the third part of your *Aqua fortis*; or if you have *Aqua fortis*, of which you have made former uſe in etching, mingle it with the pure *Aqua fortis* in ſtead of common water, and let the quantity be proportionable to the ſtrength of it; then pour it gently upon the plate, in ſuch ſort as that it may remain upon it the thickneſſe of half a fingers breadth all over: if you make uſe of the ſtrongeſt *Aqua fortis*, be carefull to mingle it with the greater quantity of common water.

Then you ſhall ſee that the water will work and bubble up in thoſe ſtronger hatchings that are moſt firmly ſtricken; as for thoſe that are fainter you ſhall perceive them clear at firſt, and of the colour of the copper, the water not making on a ſudden any other operation than appears to view.

Afterwards, when you ſhall have perceived the water to operate a ſmall time, pour it off from the plate into ſome veſſell which is moſt proper to contain it, as into an earthen diſh well varniſht, or the like, then throw ſome fair water upon the plete, to

extinguiſh and waſh away the remainder of the *Aqua fortis*, which was upon the plate, then dry it by the fire, as you have been taught before, when we diſcourſt of hard varniſh; and as touching your ſoft varniſh and *Aqua fortis* of the Refiners, be carefull in eſpeciall manner to cauſe to evaporate that moiſture, which in the Winter time is commonly between the copper and the varniſh, before you lay on your *Aqua fortis*: The ſuperfluous moiſture being evaporated from it, take your mixture of oyl and greaſe, as is before mentioned in the beginning of this diſcourſe of hard varniſh, and therewith cover thoſe places which ought to be moſt tender and ſweet; and having covered them the firſt time, lay on again upon your plate the ſame *Aqua fortis* which you had taken away, and leave it on for one half quarter of an hour, or a longer time, according to your diſcretion; then take off the *Aqua fortis*, and cover with your mixture thoſe next places, as you ſhall ſee occaſion: And as you would have your lines or ſtrokes to be deeper and deeper, ſo cover the ſweeter part by degrees with your mixture, that the *Aqua fortis* may ly the longer on the deeper ſtrokes.

Laſtly, lay on yet again the aforeſaid *Aqua fortis*, and leave it on for the ſpace of half an hour, either more or leſſe according to the ſtrength of the water and nature of the work, then take it away and caſt ſome fair water upon the plate again.

That being done, take off your border of wax, then heat your plate, ſo that the oyly mixture and the varniſh may throughly melt; then wipe it well with a linnen cloth, afterwards rub it all over with oyl-

oyl-Olive, with a piece of old beaver roll'd up, and that being done, touch it over again with your graver in thoſe places where it ſhall be needfull.

One thing I ſhall advertiſe you of, which is, that while the *Aqua fortis* is upon your plate, you take a feather and dip it to the bottome of the ſaid *Aqua fortis*, ſweeping it along to remove the froth or ſcum which gathers upon your ſtrokes or hatchings, while the water makes its operation; as alſo to give the more way to the operation of the water, and to ſee if the varniſh be not broke up, which the bubling of the water hinders you from diſcerning.

You may alſo take notice that the *Aqua fortis* of the hard varniſh, will ſerve excellently well to eat into the work made by the aforeſaid ſoft varniſh, and that the manner of applying the oyly mixture, is all one with that of hard varniſh, and who ever uſeth it may be aſſur'd, that it is much more excellent for this purpoſe than that of the Refiners; Moreover, it is not ſo ſubject to cauſe the varniſh to break up, nor to many other accidents, as the being hurtfull to the ſight, or to ones health, as that of the Refiners is, nevertheleſſe every one may uſe which of them he pleaſeth.

Sect. 22. *The manner how to lay a white ground upon your hard or ſoft varniſh.*

THere is a way to whiten your varniſhes upon the plate, in ſtead of making them black with a candle, which is thus.

When you have apply'd your hard varniſh (as

hath been taught) upon the plate, harden it upon the fire without blacking it, yet in the ſame manner as if it were blackt, then let the plate cool; and having gotten white Ceruſſe and put it into an earthen diſh well leaded, with a little Flanders Starch in it, ſet them upon the fire and melt them together, making them pretty hot, that being done, take up the white Ceruſſe, which ought to be indifferently clear, with a bruſh or great pencill of hoggs hair, and therewith whiten your varniſh, laying it as thin and as even as you can, then leave it to dry, laying the plate flat in ſome convenient place; and if by chance in whitening it, the white be difficult to ſpread, you need do no more, but put among the ſaid white Ceruſſe a drop or two of the gall of an Ox, and ſo mingle them together in the diſh with your bruſh. And for the ſoft varniſh, you ſhall need onely to do the ſame thing; after you have laid it upon the plate and extended it very evenly with the featherd end of your quills; Some will ſay, that if they black it before they apply the white upon it, when they come afterwards to grave, the hatchings will be the more black, and by conſequence will appear ſo much the more diſtinct to the eye. But to this I anſwer:

Firſt, That when it is blackt, the white will not touch it, and that they muſt not venture to put ſo much gall, for fear of ſpoiling the varniſh.

Secondly, That if the white ſhould ſpread wel, yet it would not appear otherwiſe then grey, by reaſon of the blacking of the ſaid varniſh, unleſſe you ſhould lay it ſo thick that all would be nothing worth.

The

The marking of your deſign upon ſoft varniſh, is performed with the duſt of red chalk (as is before mentioned) ſpeaking of hard varniſh, or with rubbing well the paper or deſign with the duſt of black chalk or black lead, when the varniſh is made white: for red chalk is moſt proper for a black ground.

When you ſhall have grav'd that which you intend upon the ſoft varniſh, and that you go about to etch your plate with *Aqua fortis*; that which you have then to do, is to take a little fair water, ſomewhat more than lukewarm, and to caſt it upon the ſaid plate, and then with a ſoft clean ſpunge, or with the fleſhy part of the end of your finger, to rub upon the ſaid white Ceruſſe to moiſten it all over; afterwards waſh the ſaid plate to take off the whiting of it, and then dry it. Laſtly, you may lay on which of the two *Aqua fortiſſes* you pleaſe; and for the preſerving of the ſaid white varniſh, while you are working, you ſhall onely need to lay upon it a piece of ſoft linnen in ſtead of paper, or elſe of Damaskt linnen.

If you ſhall chooſe rather to take away the ſaid whiting, you muſt take ſome *Aqua fortis* of the Refiners, tempered with fair water, lay it upon the plate, diſperſing it all over, this will ſoke and quickly eat in, after that you have alſo thrown clean fair water upon it, having in this manner taken away the whiting, you ſhall alſo let the water dry up, which ſhall remain upon it, and laſtly cauſe it to eat into your work as I have ſaid before.

Sect. 23. *Another way how to lay a white upon your varniſh.*

TAke Ceruſſe of the beſt and grind it very fine upon a ſtone with fair water, that being done take gum-water, and pour a ſmall quantity upon the ſtone and mix it with the Ceruſſe, then take a large pencill of hoggs hair or the like, provided it be not too ſtiff, with that pencill take it off the ſtone, and ſpread it thin all over your plate; and immediate after, take a larger pencill made of long and very ſoft hair, either of a Foxes tail, or Bears hair, and with a very light and gentle hand paſſe it all over the plate, ſo as to make it ly exactly even in all parts, that the ſtreaks of the former bruſh may not appear, then place your plate ſo, that it may ly very even, and let it dry.

By the way it will be neceſſary to give you this advertiſement, that you are not to mix too much gum with the white, nor too little; for if there be too much it will break and crack the varniſh, if there be too little it will eaſily rub off: therefore you muſt be carefull to uſe neither more nor leſſe than will juſt ſerve to binde the white upon the plate. Likewiſe you muſt have a care not to lay it too thick, for if it be, you cannot work with that neatneſſe and curioſity as otherwiſe you may.

Sect. 24. *Here followeth the manner, after that your plates are eaten into by the* Aqua fortis, *how to touch up, or re-grave that which haply you may have forgotten, or that which you would amend or ſupply.*

BEfore I make an end, I thought fitting to ſhew you the manner, how to touch over again many things according as need may require, by the means of *Aqua fortis*, as when it happens that having made upon your copper any thing that doth not at all pleaſe you, and that for this cauſe having covered it with your oyly mixture, to the end that the *Aqua fortis* ſhould not perform its operation, or that you would add any ornaments either in Drapery, or any other thing which might be thought on, upon ſeverall occaſions. In this caſe therefore take your plate and rub it over well with oyl-Olive, in thoſe places where there is any thing graven, in ſuch ſort, as that the blackneſſe and foulneſſe, which is likely to be in the hatchings or ſtrokes may be taken away. Afterwards take out the greaſe ſo throughly with crumms of bread, that there may remain no greaſe nor filth upon the plate, nor in any of the ſtrokes or hatchings.

Then heat it upon a char-cole fire, and ſpread the ſoft varniſh upon it with a feather, as hath been ſaid before. That which you are to take ſpeciall care of is, that the hatchings, which you would have to remain, be filled with varniſh: That being done, black it, and then you may touch over again, or add what you intend. And laſtly, make your hatchings by the means of your

needls, according as the manner of the work ſhall require, being carefull before you put on the *Aqua fortis*, to cover with your oyly mixture (as is ſaid before) the firſt graving which was upon your plate; for in caſe that the varniſh ſhould not have entred all over, that to be ſure will: In ſo much, that if it ſhould happen in ſome places of the hatchings, there ſhould be neither of the mixture nor varniſh, the *Aqua fortis* would not fail to enter and ſpoil all. Having then cauſed the *Aqua fortis* to eat into your work, take away your varniſh from your plate, by the means of the fire, as hath been ſaid before.

---

The

---

# THE ART OF GRAVING.

Sect. 25. *The ſeverall wayes of drawing your deſign upon the plate.*

BEfore I ſpeak of the manner of managing and whetting your Graver, I think it will not be amiſſe to let you know the wayes that are uſed in the drawing your deſigne upon the plate; which muſt be of the ſame bigneſſe as your deſign or print is, which you intend to copy.

Put your plate upon the fire and let it heat a little, then take a piece of the whiteſt Virgin-wax and ſpread it thin over the plate, and with a ſmooth feather gently ſtroak it all over, to the end it may lie the more even and ſmooth; then let it cool. If you intend to coppy a printed picture, and that you would have it to print off the ſame way when it is graved, with your pattern; then you muſt place your picture which you would grave, with the face or printed ſide next to your plate, waxed over as is before mentioned; and having placed it very exactly, rub the back-ſide of the print with a burniſher (or any thing that is ſmooth and round) and you will find that it will ſtick to the wax which

is upon the copper: When you have ſo done, take off the print (beginning at one ſide or corner) but be carefull you take it not off to haſtily, for by ſo doing you may tare your print or deſign; and alſo if you put your wax to thick upon the plate, it will be a means to cauſe the ſame inconvenience.

But if you would grave it the ſame way as your print or deſign is, then take the duſt of black-lead or black-chalk, and rub the backſide of your drawing or print all over therewith, and place it with that ſide ſo blacked towards the plate ſo waxed, as is before mentioned; and with your needle or drawing-point draw all the out-lines of your deſign, and you will find all thoſe lines upon your plate; but if you deſire to preſerve the backſide of your deſign from being blacked with the duſt before mentioned; then take a fine thin piece of white paper of the bigneſſe of your deſign, and inſtead of rubbing the backſide of your print or deſign, rub one ſide of the ſaid paper with the duſt or powder of black-chalk as is before mentioned; and placing it with the ſide ſo blacked, next to the plate waxed, over-lay the backſide of your deſign upon the paper, and fix them both firm to your plate at each corner with a little wax, then draw the out-lines of your deſign: onely note, that you muſt lean ſomewhat harder with your needle in drawing.

There are other wayes uſed for this purpoſe, which I think needleſſe to trouble you with; onely this I ſhall tell you, that in caſe you deſire to preſerve your deſign from being any way defaced by the marks of your needle in drawing the out-lines:

take

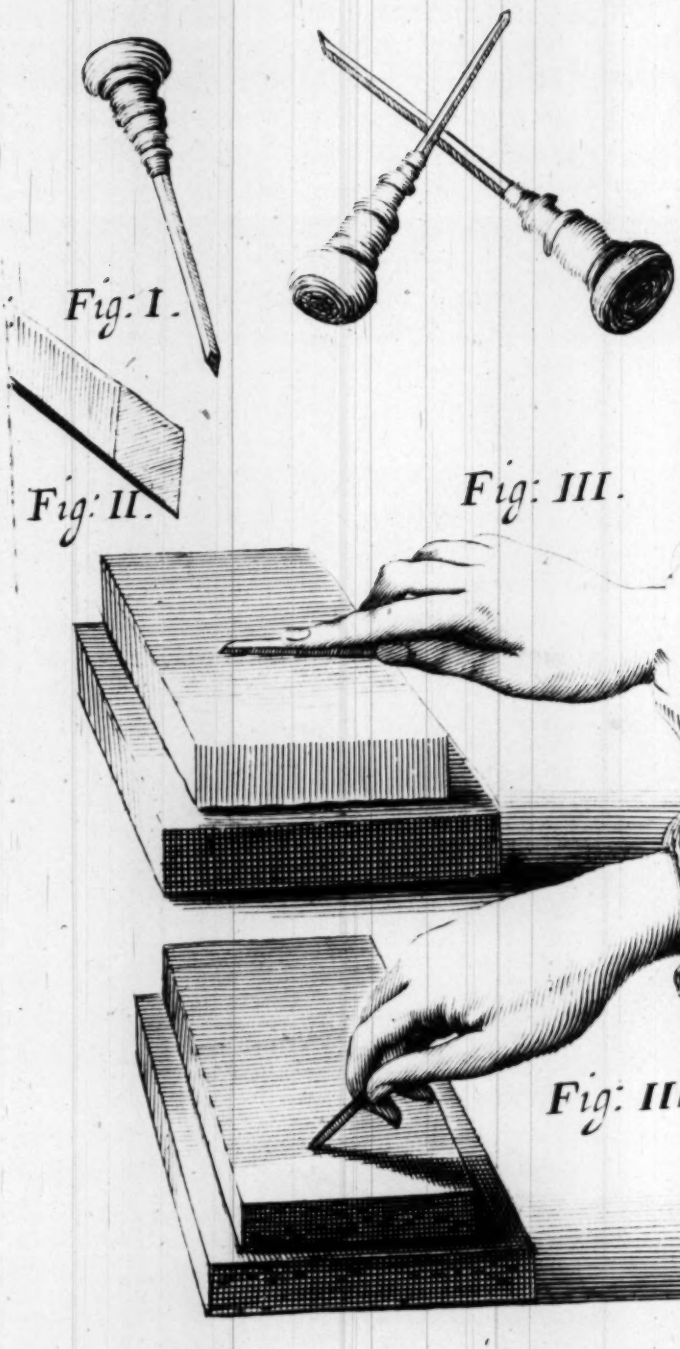


Fig: I.

Fig: II.

Fig: III.

Fig: IIII.

take a fine piece of white paper, and having oyled it hold it by the fire, to the end the oyl may ſooner penetrate it; and having ſo done wipe it very dry with a linnen ragg, and place the ſaid paper upon your deſign, making it faſt at each corner; and you will perfectly diſcern your deſign through the paper; then with a black-lead well pointed, draw all the out-lines of your deſign upon the ſaid oyled paper; when you have ſo done, place it upon the plate in the like manner as is before mentioned.

Sect. 26. *The forms of graving-tools, as alſo the manner of whetting your Graver.* Pl. 9.

THe upper part of this figure will ſhew two ſorts of Graving-tools, the one formed ſquare, the other lozeng: the ſquare Graver makes a broad and ſhallow ſtroak, or hatch; and the lozeng makes a deep and narrower ſtroke. The uſe of the ſquare Graver is to make the largeſt ſtrokes, and the uſe of the other is to make the ſtrokes more delicate and lively. But I preferre a Graver made of an indifferent ſize betwixt both theſe two; which will make your ſtrokes, or hatches, ſhow with more life and vigour; and yet with ſufficient force, according as you ſhall manage it in your working: The forms of which will appear in the I. and II. figures.

The III. figure ſhews you how to whet the two ſides of your Graver, which is to be done in this manner following; you muſt have a very good oyl-ſtone ſmooth and flat, and having powred a little Sallad oyl thereupon, take the Graver, and laying one ſide of it (that which you intend ſhall cut the copper),

copper ) flat upon the ſtone, whet that ſide very flat and even; and to that purpoſe have an eſpeciall care to carry your hand ſtedfaſt, and with an equall ſtrength, placing your forefinger very firm upon the oppoſite ſide of your Graver; to the end that you may guide it with the more exactneſſe: then turn the very next ſide of your Graver, and whet that in the like manner, as you did the other; ſo that there may be a very ſharp edge for the ſpace of an inch or better; then turning uppermoſt that edge which you have ſo whetted, and ſetting the end of your Graver obliquely upon the ſtone, carry your hand exactly even, to the end that it may be whetted very flat and ſloping, in the form of a lozeng, making to the edge a ſharp point, as the figure IIII. ſhews you.

It is very neceſſary that you take great care in the exact whetting of your Graver; for it is impoſſible that you ſhould ever work with that neatneſſe and curioſity as you deſire, if your Graver be not very good, and rightly whetted.

I cannot demonſtrate it ſo plain and fully by figures, and diſcourſe, as I would: if you have acquaintance with an Artiſt in this way, you may eaſily underſtand it in a ſhort time.

Sect.

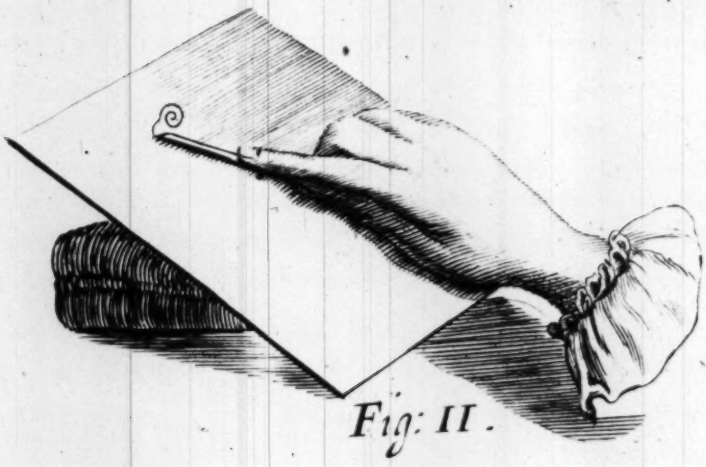


Fig: II.

Fig: III

Sect. 27. *The manner how to hold your Graver, with other particulars.*

YOu may ſee alſo that the uppermoſt part of this figure deſcribes to you the form of two Gravers, with their handles fitted for the whetting. They that uſe this Art, do before they make uſe of them, commonly cut away that part of the knob or bowl that is at the end of their handles, which is upon the ſame line with the edge of their Graver; to the end it may not obſtruct or hinder them in their graving, as the figure II. ſhews you.

For if you ſhould work upon a large plate, you will find that part of your handle (if it be not cut away) will reſt ſo upon the copper, that it will hinder the ſmooth and even carriage of your hand in making your ſtrokes or hatches; alſo it will cauſe your Graver to run into the copper in ſuch ſort, that you ſhall not be able to manage it at your pleaſure.

The third figure deſcribes to you the way of holding your Graver; which is in this manner. You muſt place the knob or ball of the handle of your Graver in the hollow of your hand, and having extended your forefinger towards the point of your Graver, laying it oppoſite to the edge that ſhould cut the copper, place your other fingers on the ſide of your handle, and your thumb on the other ſide of the Graver, in ſuch ſort that you may guide your Graver flat and parallel with the plate; as you may ſee in the IIII. figure.

Be carefull that your fingers do not interpoſe be-

between the plate and the Graver, for they will be troubleſome, and hinder you in carrying your Graver level with the plate, ſo that you cannot make your ſtrokes with that freedome and neatneſſe, as otherwiſe you may. This I think fit to give you notice of in this place, becauſe the skill of holding your Graver is that which you muſt firſt perfectly learn, and be able to practiſe without pain or difficulty; or elſe you will not gain ſo great a readineſſe and command of your hand, as is required in an accurate and skilfull Graver.

Sect. 28.

Sect. 28. *The manner of governing your hand in Graving, and other particulars.*

HAving deſcribed the way of holding your Graver, the next thing is to ſhew you how to guide your Graver upon the plate in making of your ſtrokes, which are ſtreight or crooked; that you may work with the more eaſe and convenience, you muſt have a ſtrong round leather cuſhion fill'd with ſand or fine duſt; let it be made about half a foot broad in the diameter, and three or four inches deep; lay this upon a table which ſtandeth faſt and firm; then lay your plate upon the cuſhion, as is deſcribed in the II. figure in the former Section.

When you are to make any ſtraight ſtrokes, hold your Graver as is directed in the former Section; and if you will have your ſtrokes deeper or broader in one place than in another, in that place where you would have them deepeſt, you muſt preſſe your hand hardeſt; but eſpecially in making of a ſtreight ſtroke, be carefull to hold your plate firm and ſtedfaſt upon the cuſhion.

And if you make any crooked or winding ſtrokes, then hold your hand and Graver ſtedfaſt; and as you work turn your plate againſt your Graver; for otherwiſe it is impoſſible for you to make any crooked or winding ſtroke with that neatneſſe and command, as by this means you may, if you do not move your plate, and keep your arm and elbow fixed or reſted on the table.

If as you are working your Graver happen to break often on the point, it is a ſign it is tempered too

too hard; therefore take a red hot charcole, and lay the end of your Graver upon it, and when you perceive your Graver to wax yellowiſh, dip it in the water: If your Graver become blunt without breaking, it is a ſign it is nothing worth.

It will be convenient for you to have a piece of box or hard wood, that after you have ſharpened your Graver, by ſtriking the point of it into the ſaid box or hard wood, you may take off all the roughneſſe about the point, which was cauſed by whetting it upon the oyl-ſtone. After you have graved part of your work, it will be neceſſary to ſcrape it with a ſharp edge of another Graver, carrying it along even with the plate, to take off the roughneſs of the ſtrokes; but in ſo doing take heed of making any new ſcratches in your work.

To the end you may better ſee that which is graven, they commonly roll up cloſe a piece of a black Felt or Caſtor, liquored over a little with oyl-olive, and therewith rub the places graven: And if you perceive any ſcratches in your plate, rub them out with your burniſher: and if you have graved any of your ſtrokes too deep, you make them appear fainter with rubbing them with your burniſher.

FINIS.